Application No. 10/634,262
Filed: August 5, 2003
TC Art Unit: 1638
Confirmation No.: 7055

AMENDMENT TO THE CLAIMS

1. (Currently Amended) An isolated nucleic acid molecule that encodes a polypeptide having starch synthase activity, said polypeptide comprising an N-terminal arm region, a C-terminal catalytic region and a region of about ~~900~~ 450 amino acids ~~terminating with~~N-terminal to said catalytic region,

wherein said C-terminal catalytic region ~~has~~ begins with a catalytic domain comprising alpha-1,4-glycosyltransferase catalytic activity;

wherein a nucleic acid sequence encoding said region of about ~~900~~ 450 amino acids ~~terminating with~~N-terminal to said catalytic domain in said catalytic region has at least 75% homology with the region from about nt 2425 to about nt ~~5022~~ 3791 of SEQ ID NO:1; ~~and~~

wherein said N-terminal arm region of said polypeptide comprises an amyloplast targeting peptide~~.~~; and

wherein said polypeptide encoded by said isolated nucleic acid molecule has starch synthase activity.

2. (Original) A vector comprising the nucleic acid molecule of claim 1.

3. (Original) The vector of claim 2, wherein said vector is an expression vector operably linked to elements that allow expression of said nucleic acid.

4. (Original) A host cell transfected with the vector of claim 3.

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5. (Original) A transgenic plant comprising the vector of claim 3.

6. (Original) A method of producing starch, said method comprising the steps of:

transforming a cell with the vector of claim 3; and

extracting and purifying said starch.

7. (Original) A fusion construct, comprising the isolated nucleic acid molecule of claim 1 fused to nucleic acid encoding an affinity purification peptide.

8. (New) The isolated nucleic acid molecule of claim 1, wherein said nucleic acid sequence encoding said region of about 450 amino acids N-terminal to said catalytic region has at least 80% homology with the region from about nt 2425 to about nt 3791 of SEQ ID NO:1.

9. (New) The isolated nucleic acid molecule of claim 1, wherein said nucleic acid sequence encoding said region of about 450 amino acids N-terminal to said catalytic region has at least 90% homology with the region from about nt 2425 to about nt 3791 of SEQ ID NO:1.

10. (New) The isolated nucleic acid molecule of claim 1, wherein said nucleic acid sequence encoding said region of about 450 amino acids N-terminal to said catalytic region has at least 95% homology with the region from about nt 2425 to about nt 3791 of SEQ ID NO:1.